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SWITZERLAND AND AUSTRIA—A STUDY IN THE USE OF NATURAL ENVIRONMENT

W. R. McCONNELL
Miami University

Shortly before the outbreak of World War II, the author journeyed thru the Alpine region of Europe, making observations in both Switzerland and Austria. He came away with some definite impressions as to the similarities and the differences between Switzerland and Austria. Here we can see peoples with homelands that share the same natural region, and yet peoples that use their environment in ways that are notably different, ways that mean economic independence for one group, and economic dependence for the other.

By referring to any physical-political map, one may see that the Swiss and the Austrians share the greater part of the Alps in Central Europe. In fact, the mountains are named after these peoples. Thus we speak of the Swiss Alps and the Austrian Alps.

A UNITED-DIVIDED PEOPLE

The Swiss State, a confederation of twenty-two small divisions called cantons, was built up from its foundation by people seeking freedom above everything else. Centuries ago, the inhabitants of many valleys in the Alps Mountains joined together to oppose the tyranny of their powerful neighbors. Today the nation they formed, Switzerland, is a nation where more than four million people live in an area only about one-half as large as our state of Maine. Their country has spread from the Alps Mountains northward across a hilly plateau into the Jura Mountains as any physical-political map of Central Europe will show.

The Swiss have no language of their own. The people living near the border lands of France speak French; those living in the mountain valleys that slope down to Italy speak the Italian language.

The rest of the people speak German. Since Switzerland is most easily entered from Germany, nearly three-fourths of the Swiss people speak the German language, one-fifth speak French, and only about one-twentieth speak Italian. Most of the Swiss, however, speak all three of these languages and many of them speak English as well.

The Swiss have no common religion. About half of them are Protestant and half Catholic in faith. So there is no unity in either language or religion among them. Nevertheless, all are Swiss and all are glad to live together and work together in one nation for only in this way can they avoid being conquered. Only in unity can they avoid having their country divided among their larger neighboring nations. Moreover, the Swiss have learned the meaning of freedom because their country was founded upon that idea. They realize full well that if they are to be free, no one group among them must try to force its language, its wishes, or its way of life upon other groups. So everyone is free to speak his own language and everyone is free to live in his own way, even tho his way of life may differ from that of people in other parts of the country. Truly the Swiss are a united-divided people. Their country has long remained a sovereign nation with three major language groupings and two major religious groupings. It is true, however, that language and religious groupings do not coincide and religious freedom is guaranteed to all.

By Withholding Much, Nature Has Given Much

A noted American geographer, the late Ellen Churchill Semple, in a discourse on the relation of geography and history in New England wrote "Here nature has given much by withholding much. Here man found his birthright, the privilege of struggle." This was a fine way to express a great truth, and it can certainly be applied to Switzerland with even greater emphasis than to New England.

Switzerland contains the very heart of the Alps Mountains, it borders no ocean, and touches no inland sea. It has no large farms for the little valleys between the mountains contain only small areas of level land suitable for cultivation, and most of the slopes are too steep and rugged to plow. The climate of Switzerland is cool and the growing season is short, largely as a result of the high altitude of most of the country. Switzerland has no coal deposits,

it mines few minerals, and it produces only small supplies of other raw materials. Its roads and its railroads have been built at great expense as a result of mountain barriers. Tunnels had to be dug to avoid steep climbs; bridges were needed to span deep ravines; whole mountain sides had to be blasted away to obtain enough level land for the railroad; and great engineering skill was needed in laying the tracks.

Thus has nature withheld much from Switzerland, and yet by withholding much, nature has given much. The mountains are barriers but they are also a safe homeland, a haven of refuge for those who love freedom. Many stories have been told about a great Swiss leader named William Tell, how he refused to obey Austrian governors, how he was punished by being forced to shoot an apple from his son's head. We cannot be sure that this story is true, but we do know that in days gone by, small armies of Swiss people have defeated large armies of other nations that tried to conquer them. How could they do this? The answer is found in the mountains that cover most of the Swiss homeland and throw their protecting arms around the many little settlements and tiny valleys.

Since the Swiss were able to unite in spite of differences among them, and since they were able to defend their country against invaders, the great powers of Europe finally agreed among themselves that Switzerland should be left alone and allowed to exist as an independent nation. You must not think that the great powers were doing this because they loved the Swiss people so well. Doubtless it was done for selfish reasons on the part of the strong neighboring nations. Switzerland occupies the center of a rugged region where numerous passes make it possible to cross the great Alps mountains. Thru these passes armies can march and countermarch. Thus the great powers came to understand that it would be best for these passes to be in the hands of a nation too small to be dangerous and yet strong enough to defend the passes if armies should attempt to move thru them. As a result, the Swiss have no need to spend large amounts of money on fortifications and on war equipment. Moreover, their young men do not need to spend several years in military training. The Swiss will tell you themselves that this is one of the chief reasons why they have been able to succeed in spite of the natural disadvantages of their country. Truly in Switzerland "Nature has given much by witholding much."

How Nature Has Divided Switzerland

A physical-political map will show that Switzerland is divided into three regions. The high Alps cover two-thirds of the country. Then, as you may see on the map, the low Jura Mountains extend along the northern part and shut Switzerland away from France. Between these two mountainous areas lies a rolling plateau. It extends across the country in a general westerly-easterly direction

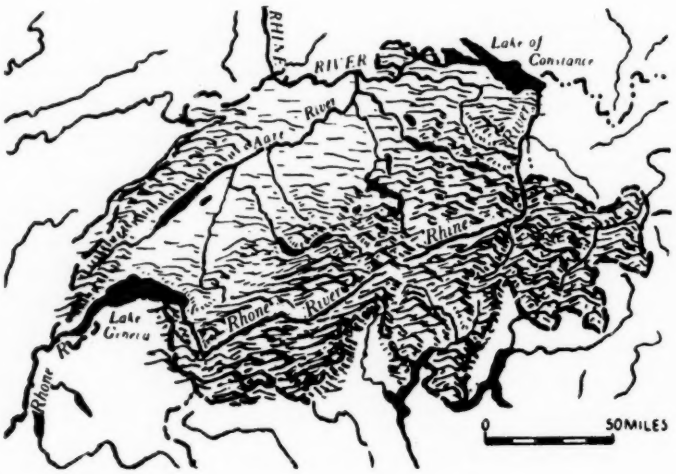

Fig. 1. Sketch map showing the mountains and valleys of Switzerland

from the French border to the Rhine Valley. Here the land is hilly with much of the surface in slopes. The altitude of this rolling plateau averages nearly 3,000 feet above sea level and yet it is the lowest land in the whole country. The map in Fig. 1 will help you to picture the location of the three regions into which nature has divided Switzerland.

Now look at the population map in Fig. 2. Do you see how closely the densely populated section of Switzerland corresponds to the part where the plateau lies between the Alps and the Jura mountains? Here the density of population is more than three hundred per square mile. How does this compare with the density of population in your own state? One remarkable thing about Switzerland is that a country so rough and so mountainous should have so dense a population. Let us now consider some ways in which the Swiss people make a living.

Swiss Farms

One of the surprising things about Switzerland is that so many of the people make a living by farming. You will find very few large farms like we have in the United States, farms with big fields of grain or other crops. The highest lands cannot be farmed at all because there the land is only barren waste of snow and ice. Moreover, even the lowest plateau lands, as we have seen, are

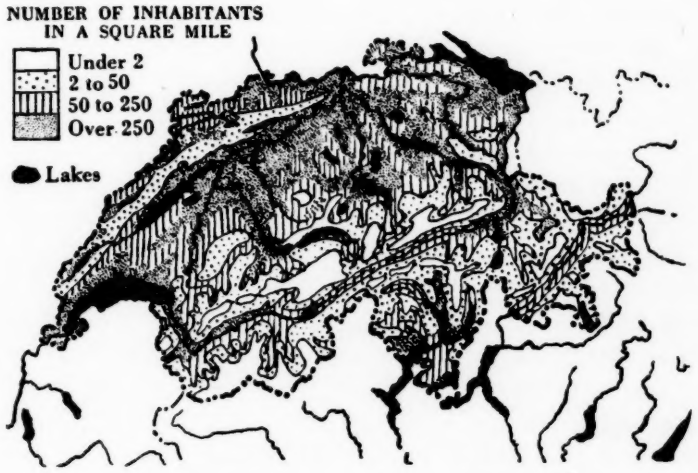

Fig. 2. Distribution of population of Switzerland

rough and hilly. In spite of all these disadvantages, more than half of the Swiss people make their living by farming. In the lower valleys the soil is fertile, and where it is warm enough, the farmers raise grain crops in their tiny fields and grow fruit in orchards and vineyards on the slopes. Since there is so little level land in the narrow valleys, the Swiss have tried to cultivate the mountain sides. In some places they have built stone walls along the slopes and they have filled in back of the walls with soil. In other words, they have terraced the mountain slopes.

High mountain pastures just below snow and ice fields, are used for pasturing dairy cows and goats in the summer. In the spring, farmers drive their herds up to the mountain pastures and here the farm family may live all summer, taking care of the animals, milking the cows and goats, and making cheese. The milk is used for making cheese because it is impossible to carry the milk down the mountain slopes every day, and deliver it to the towns and cities

on the lower lands. Cheese will keep for a long time and it can be taken to market whenever convenient. This will help you to understand why so much of the milk obtained from Swiss dairy cows is used for making cheese. Some of the milk is also used for making milk chocolate and large quantities are canned as condensed or evaporated milk. In this way the Swiss people make good use of mountain lands which could not possibly be used for growing crops. When winter comes the herds are driven back down to the valleys where they live in barns. During the long cold winter months, the dairy cows are fed hay and grains that have been raised and stored during the summer.

Swiss Factories

We have seen that Switzerland mines no coal, produces very few minerals, and has scanty supplies of raw materials. Yet many of the Swiss people make a living by manufacturing. They have scanty supplies of raw materials for making textiles and yet they have long been noted for their high-grade textiles. Always they are sure of a market for their cotton and woolen and silk goods because they make them so skillfully and so durable that people in all parts of the world are glad to buy Swiss fabrics. Cotton is imported from the United States and made into fine cotton cloth. Silk is brought in from the Po Valley in Italy and made into ribbons and high grade silk cloth. Much of the textile work is done in Swiss homes, especially in the eastern part of the country. Here the women are especially noted for making fine embroidery which is sold in all parts of Europe and even in America.

Steel and other metals are imported and used for making watches, scientific instruments, locomotives and various kinds of machinery. Cacao and sugar are imported and used for making milk chocolate.

Fortunately, numerous mountain streams fed by melting snow and ice flow swiftly down to lower levels and thus provide an abundance of hydro-electric power. This helps to explain why the Swiss can carry on much manufacturing even tho their country has no coal deposits.

Such things as watches, silk ribbons, embroidery, and milk chocolate illustrate the character of Swiss industry. All of these articles require a small amount of raw materials on which the Swiss spend a great deal of labor and skill. Moreover, when it comes to marketing and exporting such products, the cost of ship-

ping them is not great because these articles are light in weight and take up only a little room in shipping. Yet they bring a high price everywhere because of the skill with which they are made. In other words, the Swiss specialize in making articles that have a high value in proportion to their weight and bulk. Moreover they make articles that require small amounts of raw materials on which they spend a great deal of work and skill. Truly the Swiss export their skill.

Reaching the Outside World

Since Switzerland has no coastline and no navigable rivers, you may wonder how it imports raw materials and how it exports manufactured goods. There are three main highways of trade that lead from the Swiss border to the outside world. The Rhine River and valley provides a great natural highway that leads from Switzerland to the North Sea. Here Swiss imports and exports are handled at such cities as Rotterdam and Anvers. These great ports are sea gateways not only to the Netherlands and Belgium, but to all of Central Europe as well. A second Swiss trade route passes thru the St. Gothard tunnel in the Alps and continues southward across the plains of northern Italy to Genoa, a great Italian seaport on the Mediterranean. A third route goes by way of the Rhone River Valley to the French city of Lyon and on to the French Mediterranean port of Marseille. Of all these routes to the outside world, the Rhine and its valley is by far the most important to Switzerland, chiefly because the countries that buy most from Switzerland are England, Germany, and the United States. You can trace each of the routes mentioned in this paragraph on any physical-political map.

Visitors

Each year many people visit Switzerland. Here they can enjoy the beauty of mountains and lakes, the quiet freshness of valleys, and the grandeur of towering snowcapped peaks. In summer and winter alike, the country attracts thousands of tourists. In summer they are lured by the delightfully cool, pleasant climate. In winter they come for skiing and skating. So it has come about that Switzerland is a land of hotels, a country where entertaining visitors supplies work for thousands of people. Some of the Swiss attend special schools where they are taught how to do well the work of caring for tourists. Others take special training so that they can act as

guides for visitors who might wish to climb mountains.

Some people go to Switzerland to see and study glaciers which here and there extend as tongues of ice down the valleys far below the snow line. Melting ice in the high valleys often forms little stream which may be the source of mighty rivers. Both the Rhine and the Rhone flow from icy caves high in the Alps.

Thus you can see that scenery is a very valuable natural resource for the Swiss people. It is the most wonderful thing in Switzerland, and doubtless the most valuable. It has been estimated that the money brought into Switzerland by tourists each year exceeds that brought in by any other means. The fine thing about the scenery is that the Swiss people can sell it over and over again and still they can keep it. It is one product that they can sell and yet not have to deliver.

The Austrians in Their Homeland

There is no Austrian language just as there is no Swiss language, but nearly all of the Austrians speak German. For a long time they have shared the central Alps with the Swiss. In fact the Alps extending eastward from Switzerland make up more than half of the Austrian homeland.

How do the Austrian Alps differ from the Swiss Alps? In which would you expect to find more farmers? more lumbermen? more miners? Which are more attractive to tourists? why? A comparison of the Austrian Alps with the Swiss Alps will help to answer these questions. The Austrian Alps are lower and broader than the Swiss Alps. As a result of lower altitudes and more gentle slopes, the Austrian Alps are more favorable for forests and for farming. Then too the Austrian Alps are richer in mineral deposits. As a result of their lower altitude, however, the Austrian Alps have fewer glaciers, fewer snow fields, and fewer lakes than the Swiss Alps. As a result the Austrian Alps are less attractive to tourists.

Since both the Austrians and the Swiss share the Alps, it will be interesting to compare the uses that the two peoples make of their natural surroundings. The Swiss have learned how to make a living in a small, rough, mountainous country with scanty supplies of raw materials and with no seacoast. Have the Austrians with a similar natural environment done as much?

Sometimes people say the Austrians are poor because their mountainous homeland is too crowded. Let us see how the size and population of Austria compares with that of Switzerland. In

Switzerland, which is about half as large as our state of Maine, live more than four million people. In Austria, which is a little larger than Maine, live between six and seven million people. You can see by these figures that Switzerland is even more crowded than Austria and yet no one thinks of the Swiss as being poor. Since the Austrians have very much the same kind of country as the Swiss, we might expect them to live and work like the Swiss. Let us see if they do.

What about farming in the two countries? Actually, Austria has more good farmland than Switzerland and Austria also has good grazing lands in its mountainous pastures. It has some excellent farmlands in the northeastern part in the Valley of the Danube. In both Switzerland and Austria the growing season is short, for each country is more than 45° north of the equator. If both countries were placed on the map of North America, with the same latitude they have in Europe, both Switzerland and Austria would be in the northernmost part of the United States. They would have a location somewhat like that of our state of Montana. Moreover, both Austria and Switzerland have much land with a high altitude and this makes the growing season even shorter than it would otherwise be. Both countries have plenty of rain for crops and pastures, and so as regards climate for farming, neither country has an advantage over the other.

In the Danube Valley and in the smaller mountainous valleys, the Austrian farmers raise grain and potatoes, but they do not raise enough to supply the needs of their people. In the pastures of Austria graze cattle, sheep, and hogs. Yet there is not enough milk or meat to supply the people with all they want. Switzerland on the other hand supplies its own people, together with its thousands of visitors with dairy products and meat. At the same time, the Swiss export tons and tons of cheese, butter, condensed milk, and milk chocolate each year. Surely the Austrians could do as well in their own country. Why have they not done so? Perhaps the answer to this question will be found in the story of the Austrian people.

At one time Austria was a much larger country than it is today, and it once formed a part of a great empire. If the Austrians could forget their former glory and give up their dreams of greatness; if they could come to understand that they now have only a small mountainous country in which to live; and if they would use their natural surroundings with the same energy and care as do the

Swiss, then the Austrians could actually equal or even exceed the Swiss in food production. They could supply their own needs and have large quantities of food products to export to the rest of the world. It will be interesting to see if they do this in the future.

The forests of Austria are twice as extensive as those of Switzerland largely because the Austrian Alps are lower and broader than the Swiss Alps. Very little of Austria is above the timber line and the Austrians seem to be making a wise use of their forests. They take good care of them and they usually have forest products to sell, in fact, paper, lumber, and furniture are among the most important exports of Austria today. Switzerland has but little lumber or paper to export.

Now what about raw materials? What about power and manufacturing? Switzerland has no coal, but Austria is fairly well supplied with coal. Switzerland has no iron and very scanty supplies of minerals of any kind. Austria on the other hand has valuable iror deposits. It also has lead and zinc mines and some oil wells. As to water power, both countries have large supplies, but Austria has developed much less of its water power than Switzerland. The mountains of Austria have many swift streams which could be used for making hydro-electric power for railroads and factories. In the future the Austrians may develop their water power. As yet they have not done so.

We have learned that the Swiss have a problem in reaching outside markets. So also do the Austrians. The Austrians, however, have certain advantages over the Swiss in shipping their products to market. The Danube River, running thru Austria, provides an east-west waterway. Moreover, the Danube flows southeast thru a part of Europe where there is a great need for manufactured articles of all kinds. In other words, the Danube flows from Austria eastward to countries where most of the people are farmers and do not manufacture many of the things they need. Switzerland on the other hand is surrounded by manufacturing countries which make most of the things that their own people need.

The above study suggests that nature has given the Austrians a homeland better in many ways than the Swiss homeland. Austria has advantages over Switzerland for farming, lumbering, mining, and manufacturing. The outlook for the future of Austria, then, is promising if the people learn to use their natural surroundings as skillfully as do the Swiss.

CARTOGRAPHY IN 1946*

ERWIN RAISZ
Harvard University

With the end of the war it was expected that the unprecedented war-production of maps would fall off to peacetime level. This, however, was not the case. Never again does the United States want to be caught so unprepared with maps as at the beginning of the war, and the great cartographic projects initiated during the war are still being carried out. The personnel of the various map making agencies was reduced perhaps to half of the peak employment, but this is still five to ten times the peacetime level.

Greatest advancements were in the use of photogrammetry on land and in the echo-locating devices as loran, shoran, sonar, etc., at sea. The appeal of maps is improved with the added use of plastic shading on topographic maps. The increasing use of photomaps also shows a tendency to more naturalistic cartography. The release of a great number of restricted and secret maps greatly helps geographical research.

The *Army Map Service* is still the largest map producer in the United States—perhaps in the world. It is now engaged in the large-scale mapping of about 120,000 square miles chiefly in Europe and Latin America. The enormous war-coverage is now abstracted into medium and small scale maps. A better type of millionth map will replace the outdated International Map of the World. The new 1:250,000 maps have shaded relief applied with airbrush serving both military and civilian uses. The A.M.S. also supplies the army with detailed air-surveyed maps of the various camps and posts. The 850,000 items of the map library represent the greatest collection of up-to-date map information ever assembled in this country.

Paralleling the army progress the *U. S. Hydrographic Office* of the Navy is producing an amazing variety of charts. Its war production which skyrocketed to 45 million charts a year has now become available to an amazed public. Besides the usual set of nautical charts a great number of captured Japanese charts were translated and improved. The most significant is the production of "combat charts." Here the army and the navy worked together and produced amphibious map-charts—as the polyconic 1:72,000 Approach Charts and the 1:36,000 Bombardment Charts which are

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overprinted with a 1000-yard grid and can be used just as well on sea as on land. The aeronautical charts of the Navy are designed for carrier-based operations, as the Long Range charts of 70 nautical miles-per-inch, the Air Navigation Charts 3-miles-per-inch which are on Mercator projection, and the 14 mile-per-inch charts (1:1,000,000) on Lambert conformed conic projection.

Loran charts now cover two-thirds of all oceans facilitating navigation by this amazing radio-echo instrument. The monthly Pilot Charts giving winds, currents, fog, storms, obstructions, etc., are now also printed on "wet-strength" paper and on nylon, and tucked away in lifeboats and rafts. The work of submarines depends on Current and Temperature Charts and Bottom Sediment Charts, and the new Sea and Swell Charts are welcomed by seaplanes. Special charts were developed for polar regions where the usual method of navigation fails. Extended airplane surveys of the coast of Middle America is now basis of many new charts. Isomagnetic charts showing all seven elements of magnetism are prepared.

The "Ice Atlas of the Northern Hemisphere" gives on 105 pages the greatest collection of ice data of the world and represents perhaps the most important special contribution of the Hydrographic Office.

Most of the above related activities could be repeated for domestic waters as performed by the *U.S. Coast and Geodetic Survey.* The usual sets of nautical charts, tide and current charts, geomagnetic surveys, regional and sectional aeronautical charts, coast pilots, seismographic and gravity surveys are carried on with many improvements. An experimental chart where the loran curves are printed on the reverse side of a nautical chart and the location is fixed by pricking thru the paper is most ingenious. Nautical charts are printed now with altitude tints of brown half tones on the land—another example of the closer approach of map and chart. Shoran surveys using short-wave echoes for smaller distances was perfected by the survey ship U.S.S. *Explorer* in Alaska to such extent as to make a fix of location in fifteen seconds. Excellent light models of land and submarine relief were made from thin sheets of plastics, illustrating the unsolved riddle of submarine canyons.

The geodetic work of the Coast and Geodetic Survey went on as usual and its highly trained personnel gave valuable aid in the computation of the various state and military grids.

Our greatest domestic land-mapping agency, the *U. S. Geo-*

logical Survey, is now in position to plan completing the topographic mapping of the United States in twenty years. This is possible by the greatly extended use of airplane photography and stereoplotting of contours. The excellent 2 inches-per-mile map of Massachusetts with 10-foot contours is now being extended to the North Atlantic States, replacing the early and obsolete maps. Many urban areas and irrigation districts are also mapped on larger scale. Maps of Puerto Rico on 1:30,000 with 10 meter contours are issued in increasing numbers. A 40-miles-per-inch map of Alaska has been completed. Geologic mapping reached enormous proportions in connection with oil and gas and strategic mineral investigations. The newly reorganized Map Information Office of the U. S. Geological Survey is a safe guide in the cartographic maze of Washington.

The *Aeronautical Chart Service* of the Air Forces has only two of its plants in operation, one in Washington, the other in St. Louis, where aeronautical charts are kept up to date and new charts are prepared. About 850,000 charts are printed during the year. Strikingly successful are the 1:1,000,000 Radar Navigation Charts in brown collotype shadow relief. Important experiments are being made in reproducing the true colors of the terrain. Research is carried on for loran air charts, polar charts, and charts for supersonic speeds. Nearly 300,000 square miles will be photographed from the air in 1946.

The Cartographic Branch of the Department of State continues the activities of the former Office of Strategic Services and produces an amazing variety of small-scale maps of economic, social, political, ethnographic, demographic data, representing a source of geographic information never hitherto available. Their production method is interesting on account of the complete divorce of compilation and drawing. Highly trained geographers are giving written specifications to skillful artists and the results are satisfying.

The Department of Agriculture has photographed 70 per cent of the total United States and practically all agricultural lands on 1:20,000 or in the dry regions 1:31,000. These photographs are indexed and available and are used as the base of many maps especially of those of the Soil Conservation Service. These photographs also aid the Soil Survey in delineation of soil types. The Forest Service interpreting these photographs can map the height, density, age, and value of timber. The use of infrared film with

minus-blue filter helps to separate tree types. A number of remarkable regional atlases were issued by the Department of Agriculture as the Northern Great Plains, the Southeast, the Northeast, California and Nevada, etc., showing landforms, climate, production, transportation, employment, etc., for planning purposes.

An extensive survey of the Missouri Basin is being made by the *Bureau of Reclamation.* The *Bureau of Census* is now at work on a great statistical and general atlas of the United States, filling an important need. The *U. S. Board on Geographic Names* caused considerable controversy with the spelling of Chinese names.

The Glacial Map of North America published by the *Geological Society of America* is a summary of knowledge of past and present glaciation prepared by the best glaciologists of the country. The Geologic Map of South America, 1:5,000,000, also represents a major piece of compilation.

With the publication of the Bogotá sheet, the *American Geographical Society* completed its Map of Hispanic America on the scale of 1:1,000,000, (in 107 sheets) after twenty-five years of work on the project. Many important regional maps appeared in the *Geographical Review,* among them the first maps of their Atlas of Diseases. A world index of official topographic maps was prepared by R. R. Platt.

The *National Geographical Society* continued to publish its excellent regional maps, such as India, Japan, the United States, the Northern Hemisphere, etc.

Among *foreign countries* the cartographic production of Great Britain rivals our own. Progress was made in the centralization of cartography of the various members of the Empire resulting in better maps and greater economy. Perhaps the most interesting products are the maps of the Ministry of Town and Country Planning and the Association of Planning and Regional Reconstruction which could be studied with advantage here. The excellent little maps of foreign countries and current events of the Serial Map Service parallel the work of our State Department.

A large land-type wall map of Europe by Ehlin and Söderlund in Stockholm represents the best in this style. Several new topographic and geological maps were also issued in Sweden. Most other European countries did not yet recover sufficiently to produce new maps. India and China, however, in spite of their internal difficulties issued new maps, among them the Crop Atlas of India in 19 sheets.

An uninterrupted stream of maps comes from Canada, Australia, New Zealand, and South Africa. The crop conditions in Canada and United States are analyzed in the maps of the Sanford Evans Company in Winnipeg.

Remarkable production of maps reaches us from Latin America; especially Brazil produced new interesting mineral, agricultural and vegetation maps. The whole country is now resurveyed from the air and new 1:100,000 sheets of São Paulo are issued. Argentina also published several new sheets and general maps. Columbia has a new geological map and an Atlas of Cuba is in preparation. New maps of the southern states of Mexico are coming out soon.

In *historical cartography* the development of Brazilian boundaries was presented by R. B. R. Pereira and "Our Georgia-Florida Frontier" by A. H. Wright represents a major study of this much-contested region.

New projections were presented by S. C. Gilfillan; his "Mattermost" projection centered on Paris and his doubly equidistant projection based on Paris and Chicago served well in presenting air routes. The Quincuncial Projection of the World by Albert A. Stanley (Chart 3092, C. & G. Survey) shows air routes on repeating squares with conformal land areas transformed from a stereographic projection. O. S. Adams produced a "General Theory of Equivalent Projections" (C. & G. Survey, 1945).

Cartographic instruction is advancing all over the country. Courses in cartography are offered in scores of universities and the demand on trained cartographers with proper geographic background is still heavy. Instruction is greatly advanced by the depository plan of the Army Map Service by which hundreds of libraries receive copies of important maps. A somewhat more restricted distribution is offered by the Navy, Air Forces, and the Department of State.

Cartographic exhibits in the Library of Congress and in the New York Public Library and at the meetings of the various geographical and surveying societies attracted record attendances, witnessing the great interest in mapping.

Cartography suffered heavy losses by the deaths of Charles Henry Deetz of the Coast and Geodetic Survey in his 82nd year and two noted British cartographers, Edward Ayearst Reeves, map curator, and Arthur Robert Hinks, secretary of the Royal Geographical Society.

GEOGRAPHY RECONVERTS

H. THOMPSON STRAW
Western Michigan College, Kalamazoo, Michigan

The war proved itself a stern but none-the-less effective geography teacher. A harassed and often distraught population received its daily lesson in place geography with its morning newspaper. Locations which had a foreign, even a primitive, sound became common household words. An example is Guadalcanal. Few people knew of its existence. But a small rocky island, almost unknown except to chart-makers and ships masters, has become as familiar a name in American history as Bunker Hill or Yorktown.

To supply the ever-increasing demand for information about where events were occurring, our newspapers and magazines carried an ever-increasing number of maps. Commercial map firms found their products eagerly sought and did a larger volume of business than at any time before in their history.[1] Popular interest did not stop with place geography. As people followed the course of campaigns and the reports of battles in which the neighbor boy down the street or a member of the family might be engaged, interest as to what manner of country our troops were in grew at home. And again magazines, newspapers, and books, written by geographers and non-geographers, sought to satisfy this popular demand for information. As one reviewer stated: "The interest in peoples of other lands aroused by the war is nowhere more evident than in current publishing lists. Almost anyone who has lived for a time in any of the lands involved in this global conflict, and that means most of them, and who can write about them intelligently has a publisher and public waiting for the book.

"After we were in the war we discovered that even tho it is a small world, it has many people about whom we know astonishingly little. To our credit be it said that we are doing our best to overcome this lack of knowledge."[2] It was in this fashion, with its attendant difficulties, that the United States became at least somewhat self-educated in geography during the war.

Paralleling this popular interest there was during the war ample official interest on the part of government agencies centered

[1] Wright, John K.: Americans Grow Map-Minded, *Amer. Merc.*, 57, 1943:331-8.

[2] Unsigned review appearing in *Houston Post Sunday Mag. Sect.*, November 21, 1943, p. 4.

in Washington in the contribution which geographers could make to the war effort. As a result a large number of geographers, either in uniform or out, found themselves engaged in war research in the nation's capital or elsewhere as the needs for their services arose. It is an almost impossible task to summarize the work which they accomplished, since that work varied from agency to agency and within the same agency from time to time. In the absence of any quantitative appraisal of the volume of work done by geographers, it would appear that the greatest amount of energy was expended upon maps. Maps were collected and catalogued, maps were redrawn and gridded, and new maps were produced from existing maps, records and aerial photographs. In addition to the conventional maps considerable work was done on terrain models and on the use of aerial photographs as map substitutes.[3] A collection of detailed information about place names employed a number of geographers in the Board of Geographic Names. Voluminous reports were prepared on various areas, with particular emphasis on transportation, terrain features, port facilities, and other aspects of a regional study which were applicable to the military problems of the day. These reports originated in various agencies and usually moved thru numerous channels to final editing by the Joint Intelligence Publication Board. In addition to this war research, geographers were also used in research positions and administrative posts where their work was distinctly outside the realm of their training, geography. This brief summary gives only a slight conception of the tremenous volume of work done by geographers in their war research, but I believe it covers the major items of accomplishment.

The term "war research" rather than "geographic research" has been used to describe the activities of geographers during this period. Geographic research usually has as its goal the increase of geographic knowledge. It seeks new techniques, new information, and a proper balance of the various elements of a given landscape. Thus, as has often been pointed out, cultural items usually outweigh the natural in an urban landscape, but the reverse is likely to be true in a sparsely populated area like the tundra or the taïga.

[3] Lessons from the War-time Experience for Improving Graduate Training for Geographic Research, Report of the Committee on Training and Standards in the Geographic Profession, National Research Council, *Ann. Assn. Amer. Geog.*, **36**, **1946**: 197-200.

There were no such problems of balance in war research. The items of greatest importance in any landscape were those of military use and significance. What new techniques were developed seemed to be more often matters of improving mass production or enabling work to be turned out in a shorter period of time rather than those techniques which might have been designed to achieve more accurate or better balanced results from the standpoint of the science, geography. I believe that one would be not far wrong to say that altho individual geographers, since many of them were young, may have gained in experience and knowledge as the result of their war work, geography as a whole gained little. It applied knowledge and skills which had been learned earlier to new problems rather than extending its limits of knowledge or developing new skills. These statements are made with no intention of belittling or debunking the war research of geographers. There is in Washington today a better collection of maps, a more nearly complete coverage of aerial photographs, and a larger number of military-regional studies than have ever existed in this country before. Furthermore, by following this perhaps limited but practical approach to his wartime problems, the geographer has achieved a larger measure of popular acclaim and official recognition than he has been able to achieve at any time in the development of the science in this country.

Geography and Reconversion

But it is evident that the gains of the past are not sufficient. Today the problems which face geography may appear different from those of wartime for they are the problems of reconversion. But in reality there is great similarity between the problems of wartime and those of peace. In war it was necessary, if geography was to make its contribution, that many persons be made aware of what the subject had to offer. In peacetime a similar situation exists. Specifically the problems might be stated as follows: to what degree will geography play a larger part in college education; to what government agencies can geographers hope to make further contributions; what opportunities will exist in business for geographic skills; and last and perhaps most important of all to what degree can geography hope to make an increased contribution to elementary and especially secondary education. For if geographic thinking is ever to become a part of American life, and if the nation is not to need self-education in geography at each national crisis, then geography must be introduced to a greater extent into the

high schools. Such has been the aim of the National Council of Geography Teachers and such has been the oft-repeated statement of numerous authors whose writing has appeared in the JOURNAL and in other geographic publications. The whole geographic profession is keenly aware of need for geography at the secondary level of education. The problem is to make others equally aware of this need and of the contribution which geography can make.

As has been pointed out, during the war a similar problem was met by a practical approach, by geographers demonstrating that they were more interested in the specific problems which had to be solved than in the direct development of their subject matter field. Might not this same approach net equally desirable results if applied to secondary education? For we have already seen that real problems did not cease to exist with the cessation of hostilities. The laymen, in this case the school authorities and the tax payers, are likely to refer to them as "human problems"[4] and to be keenly aware of the need for solving them. Often these problems are so broad that it is impossible for any discipline as presently conceived to answer them. Only therefore by a coöperation of various disciplines can a reasonably complete understanding of the entire problem be reached.

To many people in education the term "practical" and the advocacy of a practical approach is distasteful,[5] for the term has become in some minds associated with a narrow training in some vocation. In college research we have a similar viewpoint and the unfortunate terms "pure" and "applied" science. The implication is obviously that research that has a utilitarian trend is somehow less than pure. This point of view is unfortunate for it fails to recognize the tremendous importance of utilitarian factors in promoting vigorous educational growth. Classical languages were enthusiastically studied in the Middle Ages when they were a key which could unlock the knowledge of the ancient world and were a valuable weapon with which to combat the established authority of the church.[6] Mathematics was born and has grown as a practical

[4] For further discussion of the broader aspects of "human problems" see Platt, Robert S.: "Problems of Our Time," *Ann. Assn. Amer. Geog.* 36, 1946:1-43, and Jones, Howard Mumford: "The Future of the Academy," *Proc. Amer. Acad. Arts and Sciences,* 75, 1944:131-139.

[5] Ortega Y Gasset, José: *The Revolt of the Masses,* Geo. Allen & Unwin Ltd., London, 1932, pp 85 ff.

Stern, Alexander W.: "The Threat to Pure Science," *Science,* 100, 1944:356.

[6] Brett, Axen: "Instrumentalism and the Humanities," *Bull. Amer. Assn. Univ. Prof.,* 31, 1945:181-188.

need for it has been felt.[7] German became an important subject in this country when it became evident during the nineteenth century that Germany was a nation of teeming scientific inquiry and thought. The present popularity of the Russian language doubtless stems from our sudden realization of the strength and greatness of U.S.S.R. and the natural desire to understand its thoughts and scientific contributions. Much of our fear, therefore, of the practical and the utilitarian in education is simply not founded upon fact. In 1938 V. C. Finch wrote "the idea that the only real knowledge is pure knowledge and free from all implication of practical consequence is rapidly going overboard."[8] The war has accelerated the process of discard. What is needed for the future is scholarship with intelligent social consciousness.

Utilitarian Geography

What changes in secondary geography are to be made if the approach is to be a practical one? If the war experience is any criterion of judgment they will be few—shifts in emphasis rather than changes in the content of the subject. The war did not develop a new geography. It did place a premium upon work which was directed along practical lines and done in coöperation with other disciplines. The lines of approach to be suggested for the future are not radical departures from the past. Indeed all of them will be found within the framework of geography as we know it.

To suggest what is everywhere immediately at hand, there is the community study. Every community has its peculiar problems, some social, some economic, and some political. A geographical study cannot suggest the complete solution, but it can give a base of reality to those principles of sociology, economics, political science or perhaps social sciences which must be applied. Only by gaining the coöperation of these other fields can a truly complete study be made. Usually the problems, like those of war research, are too large for any single discipline to handle effectively.

An increased use of maps and their application to new situations is another contribution which the geographer can make. Work of this type probably occupied more geographers during the war years

[7] Hogben, Lancelot: *Mathematics for the Million*, W. W. Norton and Co., Inc., New York, N.Y., 1943, pp. 17-38.

[8] Finch, V. C.: "Geographical Science and Social Philosophy," *Ann. Assn. Amer. Geog.*, 29, 1939:21.

than any other. For example, many historians, both civilians and those in the armed forces, were endeavoring to piece together the history of military action. They found it impossible to understand the strategy of a campaign unless they knew the terrain involved. A knowledge of terrain and of vegetation cover was essential to an understanding of the tactics employed in a given operation and of the problems of logistics, which in a war of movement were so important. So the historians found the technique of the geographer an essential tool for the solution of their problems and the presentation of their accounts. A similar contribution by the geographer to the various disciplines in the social science group as they tackle the problems of peacetime seems likely.

A whole series of practical problems will arise from the increased importance of aviation. Weather and map study will become "musts." But a somewhat new approach to geographic study has also become imperative. It has become known as global geography. Postulated upon the assumption that the development of rapid transportation has figuratively shrunk the earth, it attempts to orient the student in terms of future airplane routes. Hence the so-called "air-age" maps showing the world by a north polar projection. Much excellent material has already been compiled to fit the new approach, many of the articles have appeared in the JOURNAL. One phase which seems to have been at least somewhat neglected is the pattern of areal differences of the earth which rapid travel makes more noticeable. Many of our secondary school geography courses offer material which has been organized along tropical or systematic lines. Thus we study climate, landforms, the distribution of population, and some urban geography. Perhaps this method is open to the criticism that it is "dry and academic,"[9] a criticism voiced against its use on an educational radio program, or on the other hand this approach in geography may have its virtues[10] and therefore should be retained, but certainly somewhere in the high school a course giving regional patterns should also be offered.

Another broad field in which the geography teacher can make a practical contribution is that of international trade. With an unprecedented capacity to produce, either in our own history or

[9] Gould, Jack: Course in Geography. New York Times, May 5, 1946, p. X7.

[10] Ackerman; Edward A.: "Geographic Training, Wartime Research, and Immediate Professional Objectives," *Ann. Assn. Amer. Geog.*, 35, 1945: 121-143.

that of the world, the United States trade with other nations and full employment at home are inseparably linked together.[11] Much of the work in the field of economic geography is being done by economists. It is noteworthy that during the first world war commodity studies done in the government were largely in the hands of geographers, in the second world war in the hands of economists. To be most effective this, too, should be a coöperative piece of work. Perhaps one of the major contributions which geography can make here is to help the often ethereal principles of economics down to the solid reality of the earth. But it is certain that an understanding of the problems of international trade will call for the best efforts of both the economics and the geography teachers.

Still another field needing the contribution of the geographer is that of international relations. Despite numerous ups and downs in its progress, our country seems to be embarked on a program of international coöperation. As a result citizenship responsibilities are no longer limited to an intelligent understanding of the problems within the United States but have grown to include a similar understanding of the world at large. Summarizing the results of numerous public opinion surveys, Hadley Cantril,[12] Director of the Office of Public Opinion Research at Princeton University, points out that while a vast majority of Americans favor international coöperation, it is questionable whether this desire for "internationalism" is rooted in sufficient information and appreciation of foreign viewpoints to stand a severe test. He concludes, "Democracy has always assumed that if the people have the facts they will develop opinions that will be in the best interests of democracy. There is a crying need for a vast job of public education that will give people the most relevant facts which any lasting peace arrangement must take into account. Today, in spite of the efforts of the Government and many private organizations, there seems to be no campaign of public education that has sufficient appeal to interest the overwhelming majority." The problems here again are too large for geography to deal with them alone, but unless a geographic approach is included, the real understanding of many of these problems will be lacking. Thus Russia's demand for ice-free ports, England's desire for dominance in the Mediterranean, and

[11] Hoover, Calvin B.: *International Trade and Domestic Employment,* McGraw-Hill Book Company, New York, N.Y. 1946.

[12] Cantril, Hadley: How Real Is America's "Internationalism"?, *New York Times Magazine,* Apr. 29, 1945, pp. 9 and 34.

what are to us the often undesirable alignments of the Argentine can perhaps best be understood in terms of the geography involved.

Conclusion

In advocating a utilitarian program and the method of coöperation in secondary geography, I realize that I am addressing a group of teachers to whom coöperation with other disciplines may to some extent lack appeal. The experience of geography in seeking to cooperate with Social Science on the one hand and with Education on the other has not always been a happy one. In group discussion and in work, unfortunately all too often he who speaks longest and loudest outweighs the person of greater information and knowledge but less force. The practices of filibuster are not restricted to the halls of congress, for similar tactics in school activities may be observed. Similarly in wartime, the coöperation between geography and other disciplines did not always progress smoothly. Professional jealousy and personal ambition often played important parts in shaping general policy. Indeed it would be a rare person who would seek to prove that in war research, geography as a whole was able to make maximum contribution to the war effort or that the individual geographer found himself in the spot where he could best perform his greatest possible service. Nonetheless, despite the difficulties of the situation, geography, following a practical approach and a coöperative method, achieved a larger measure of popular acclaim and official recognition than ever before. It would therefore seem wise to pursue a similar trend in the future.

To those to whom the term "practical" as used in education is still distasteful, and who view the increasing emphasis upon utilitarianism as detrimental to scholarship, let them remember the developments of the other subject-matter fields. Furthermore, if they will consider how radically the interpretation of such terms as "democracy" and "social justice" has changed in the past few decades, they may appreciate the possibility of changing "practical" in education from a term which means narrow vocationalism to that of scholarship with intelligent social consciousness.

THE SPAN OF A CONTINENT

American Travel Books of Interest to the Geography Teacher

O. Orland Maxfield
University of Arkansas

The prospect of the discovery of new lands in the United States no longer arouses the dozing school boy, for the American frontier has passed. We are yet pioneering in techniques and methods and we still have much to explore, both in science and in thought; but no longer does the frontiersman stand on one side of the mountain and wonder if he dare cross into the savage wilderness beyond. The days of adventure and the disclosure of billowing prairies and stately forests are a part of our glorious past but they linger with us today. They beat in the hearts of those living who partook in that great westward movement, and they spring forth from the written accounts of those travelers who faced the dangers and privations of the times, and preserved their findings and experiences for posterity.

Initial Exploration

If we are to rely upon the findings of the late Philip Means, noted historian and prominent authority on ancient civilizations, the first Europeans to make settlements on the American continent were the Norsemen. In legends we read of their domain on this continent being divided into three parts, Vinland falling within the present political boundaries of the United States. Their explorations were confined mainly to the coast and they probably did not sail southward beyond the mouth of the Hudson. It is a matter of great dispute, yet of probable truth, that the Norse penetrated inland to Minnesota, as the Kensington Rune Stone serves to verify. From Norse sagas it is evident that as late as 1362 a colony in America was still functioning.

Why the settlements were abandoned and why the rest of Europe did not learn of the new land at that time, we can only wonder. The last of the Norse must have left by 1400 and a century was to elapse before a European, this time sailing under the flag of Spain, was to set foot on American soil again.

Documents on the Spanish exploration of this country are scarce and seldom available to most people. Access to French accounts is also impossible in most situations. France held a vast em-

pire but it did not care to colonize as did England. Trappers and missionaries made up the bulk of its colonial peoples but only a few such as Father Louis Hennepin, kept diaries of their observations. Hennepin's *Discovery of the River Mississippi* contains a fiery, beautiful description of Niagara Falls, the portage there, and the Great Lakes country. Here we also find the old belief that Asia and the American continent were one, for he states that "in all probability Japan is on the same continent as America." *Description of Louisiana* is a freer translation and more inclusive of his travels but it must be remembered that the name "Louisiana" then referred to what is now spoken of as the old Northwest Territory.

Eastern Seaboard

It was for the English, who began with a narrow strip of coast, to exercise the dominant control over North America. The most valuable early English record is that of Captain John Smith. Written during a voyage to New England in 1614, it states that the prime object of the trip to the new world was to find gold and copper deposits. There is a fairly complete account of the natural resources and physiography of that region.

Because of the very meager and poor transportation facilities, little travel was done in the early days. We must also remember that the colonists had little time for unnecessary journeying and many of them were too ignorant to preserve their observations in writing. It was for the men of leisure and those who had a definite mission in their travels to make the records. It is doubtful if those who were struggling in the wilderness found it quite as romantic and glorious as some writers are wont to paint it.

What few accounts we have of this early period are concerned more with the natives and the colonists themselves than with the character of the land invaded. However, many men came to America for the purpose of studying the prospects of the new land and published their findings for the people in Europe. A good example of this is the book by Thomas Budd, written in 1685, on Pennsylvania and New Jersey. Budd, and Edward Ward, who wrote on New England some fifteen years later, traveled for the sole purpose of acquainting the English people with the possibilities of settlement in this country.

Perhaps the best known travel book of the Pre-Revolutionary period is John Bartram's *Diary of a Journey* which takes us thru

the south Atlantic coastal states. Bartram traveled by boat, coach, horseback, and afoot. Natural vegetation and formation are stressed and detailed descriptions are given along with man's changes in the scenery. Of especial note is the mention of the rice, indigo, and silkworm industries and of the hurricanes occuring at Charleston, South Carolina.

Another valuable book is *Travels in Virginia in Revolutionary Times.* This consists of diaries and observations of people journeying thruout the state. Much is told about the character of the people as well as the roads and general landscape.

Even after the east coast was densely settled, men toured extensively its width and length, always finding new scenes of grandeur. Timothy Dwight produced four volumes to extol the magnificence of the landscape and the wealth of humanity to be found in New England. Growth of the east coast is best exemplified in David Crockett's account of the growing manufacturing establishments. Nathaniel Hawthorne left the *American Notebooks* which enable us to enjoy the rural communities and the people as he saw them. His descriptions of the Vermont mountains are flawless gems cut by a great artist.

But above them all there tower the works of Henry David Thoreau. He did not travel far when he went to Walden Pond nor did he remain there long, but his essays on the seasons are masterpieces of philosophy and description. *Cape Cod* is likewise a marvelous piece of adventure, showing us new beauty in an old scene. Of importance to meteorologists is *Early Spring in Massachusetts,* with its weather accounts for the same day in different years. We have also *The Maine Woods,* "which" said Clifton Johnson, "is perhaps the finest idyl of the forest ever written. It is particularly charming in its blending of meditative and poetic fancies with the minute description of the voyager's experience."

THE EASTERN INTERIOR

And so our east coast grew up, wealthy and powerful, lauded by the pens of its children. But what of the rest of the country, that giant sprawling beyond the mountains? It was to grow up too, but it was slower and had a later start. The British forbade settlement west of the mountains because of the Indian menace and, altho many people disregarded the order and moved into the new Eden, its growth was seriously retarded.

One of the first advances into this new territory was made by

James Robertson, the founder of Nashville, Tennessee. His biography, written by Thomas E. Matthews, tells of the heroic efforts of this great man to settle the west. Before he and Daniel Boone led groups across the mountains, there were only the scattered cabins of the more adventurous souls who had dared to forge ahead alone.

Because of the importance of boats for transportation, most of the villages were founded along the streams. But a factor often overlooked is that of the salt licks. Frederick Jackson Turner, in *The Frontier in American History,* writes: "The early settlers were tied to the coast by the need of salt, without which they could not preserve their meats or live in comfort.... But when discovery was made of the salt springs of the Kanawha, and the Holston, and Kentucky, and central New York, the West began to be freed from dependence on the coast. It was in part the effect of finding these salt springs that enabled settlement to cross the mountains."

F. A. Michaux made extensive travels in Ohio, Kentucky, and Tennessee, publishing his observations in 1805. He, like Ward and Budd previously mentioned, was sent here to evaluate the prospects of the land. Michaux reminds us that in the early days Charleston was the most important port along the Atlantic coast because the sailing vessels were almost automatically driven there by the winds. He gives an excellent account of his trip from South Carolina to Ohio. In the same year, Thaddeus M. Harris printed the results of a journey northwest of the Alleghany mountains.

The best study of early means of travel is to be found in Hulbert's, *Pioneer Roads and Experiences of Travelers.* Published in 1910, it is a collection of the experiences of early travelers. Especial emphasis is placed on the taverns, early turnpikes and other roads, and the modes of travel.

One of the settlements which early received the attention of writers was the one on the English Prairie. This was a large tract of prairie bordering on the Wabash River, in what is now Edwards County, Illinois. When this part of the west was being settled, there was a plan to find a suitable site on which to establish some English people who wished to emigrate to America. Many people were attracted to the community by the report of Morris Birkbeck, one of the main figures promoting the settlement. John Woods spent two years upon the prairie and upon leaving, published his observations. *Letters from the Illinois,* written by Richard Flower and Elias Pym Fordham's account both give excellent descriptions of the conditions existent.

A woman writer, Catherine Stewart, journeyed thru much of Illinois, Wisconsin, and Michigan. Of interest to the modern reader would be the discussion of such cities as La Crosse, Chicago, and Detroit, which began as mere trading posts.

The most recent tribute to the Illinois country is *The Sangamon,* by Edgar Lee Masters. Done in the style of one who reminisces, it tells the story of Menard County, Illinois and the part the Sangamon River played in the lives of the people, as he heard it from his grandparents and other pioneers of the community.

G. W. Featherstonaugh and Frederick Law Olmstead have given us much of the Old South in their writings. Just before the Civil War, Olmsted made a journey thru the seaboard slave states and immediately afterwards, a journey thru Texas. The reports of these two trips and his *Journey in the Back Country,* which places emphasis on the Mississippi Valley and cotton culture, give us a good view of the South, its peoples, land, and the economics of slavery.

Life in the Confederacy during the Civil War is well described by D. C. DeLeon. Pictures of such cities as New Orleans, Richmond, and Atlanta, the conditions which existed thruout the land during the war, and the geography of many of the army maneuvers give us the inside story of what was happening to a great economic system during those four eventful years.

WHERE THE WEST BEGINS

Between the Mississippi Valley and the Great Plains there was a transition zone. This western prairie now gone, is saved for us by the pen of Washington Irving. In 1832, he made a trip thru what is now Oklahoma and kept a diary of what he found. He placed especial emphasis on the many varieties of wild life which he observed.

Beyond these outposts of the east there stretched a vast treeless and seemingly uninhabited plain. This land between the Mississippi and the Rockies was passed over by the early settler. It seemed most forbidding and far from presenting any attraction as did the land beyond, it frightened those who had seen nothing like it before. In 1835, James Hall published a series of penned pictures of this area.

TO THE WEST COAST

Between 1804 and 1806, Lewis and Clark crossed this region twice and pierced the western mountain ranges to stand on the

shores of the Pacific Ocean. One of the best accounts of this expedition is the diary edited by J. K. Hosmer. It is of greater interest if you have before you a detailed map of the United States as you read, so you can follow the exploration party as it made its way up the rivers and over the mountains. Climatic conditions, natural vegetation, and wild life, the Indians, and the topography are all treated in great detail.

Another interesting account of the geography of the western lands is *The Travels of Jedediah Smith* by Maurice Sullivan. In the introduction, Sullivan states: "The inquirer might have searched encyclopedia and school book without learning the name of the discoverer of the central route from the Rocky Mountains to the Pacific Ocean; the man who made the effective discovery of the South Pass; the first white man to cross Nevada; the first to traverse Utah from north to south, and from west to east; the first American to enter California by the overland route; the first white man to conquer the High Sierra; the first to explore the entire Pacific Slope from San Diego to Vancouver; in brief, the man who charted the way for the spread of the American empire from the Missouri River to the Western Sea."

The most elaborate records of our western domain are two very weighty and extensive volumes. One is the report of a military reconnaissance written in 1848 by Lt. Col. W. H. Emory and the other is by John Bartell. Both are extraordinary in their treatment of the far west.

Spanning the Continent

Reuben G. Thwaite has brought together and edited several volumes of travels which cover the entire country west of the Appalachians and reference to those must not go unmentioned. A few have been singled out in the preceding pages. There are many other volumes, each telling about the same in a slightly different manner. Those mentioned in this paper perhaps are among the best and are representative, showing how in three and a half centuries we have spanned a continent.

The scenes have changed greatly since the days of the early travelers, and they will continue to do so. But we have exhausted the prospects of new and thrilling discoveries of exotic, untamed lands. As Don Herold so simply and rather tragically states it: "Methods of locomotion have improved greatly in recent years, but places to go remain about the same."

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THE NATIONAL COUNCIL AT WORK

Final Plans for Annual Meeting

As this issue of the Journal goes to press, final plans are being completed for the annual meeting of the Council at the Neil House, Columbus, Ohio, December 27 and 28. See the November Journal of Geography for the preliminary program and announcements.

The American Society for Professional Geographers joins the National Council in the Saturday morning and noon meetings on the curriculum in geography. On Friday, the A.S.P.G. will hold three panel discussions on topics of interest to all geographers. In the morning the discussion will be on "Resources Appraisal and Development Planning—Regional and International," while in the afternoon a discussion on "Current Map Information" will be followed by one on "The Geographer's Opportunities in Business." The meetings of the Association of American Geographers, beginning on December 28, will continue thru December 30.

Report from the Nebraska Council

The Nebraska Council of Geography Teachers has completed its post-war organization. The new officers of the Council are Mattie Muniford, President; Esther S. Anderson, Secretary-Treasurer; Earl E. Lackey, State Director. Plans for the coming year emphasize geography in the secondary school as the major project. The Nebraska Council has been in past years one of the most active of the state organizations with a helpful mimeographed bulletin as one of its projects. The news of its increased activity is welcome.

New Service of the Public Relations Committee

Dr. David J. Swartz, chairman of the Public Relations Committee of the National Council, has organized an efficient system of press releases. News can be released to more than one hundred educational magazines and selected newspapers within a few hours. If editors of bulletins published by state councils do not receive these releases, they should ask to have the names of the bulletins listed.

Council Interests and Activities

A one-page questionnaire was sent in March, 1946, to 759 members of the National Council. Over half of those receiving the questionnaire have now returned their copies. Included among the items was a list of areas of interest. The list was only suggestive as space did not allow a comprehensive list. Additional space was given for topics to be added by those who wished. Many checked several items.

The areas of interest checked were as follows:

Visual aids	59%	Unit plans	29%
Development of map skills	58%	Sequential development of concepts	26%
Special methods	47%	Out-of-door education	16%
Course of study	46%	Bibliography	15%
Grade Placement of topics	31%	Supervisory program	13%

The interests of the members of the Council as expressed on the questionnaire have been of much help to the officers as they have planned committee projects and programs for Council meetings. Members who did not receive the questionnaire are invited to send similar information by letter to any of the officers.

Katheryne Thomas Whittemore, *President*

GEOGRAPHICAL PUBLICATIONS

H. H. Barrows, Edith P. Parker, and Clarence W. Sorenson. **Our Big World.** Silver Burdett Company. 1946. $1.44.

This book of 186 pages is the first of a series of three geography textbooks. It is well illustrated with maps, pictures of the globe, pictures, drawings, and sketches. In a number of instances sketches serve to illustrate more clearly than an actual picture would. It would seem to me, however, that the pictures of the globe at the tops of pages 16 and 17 are too small to serve the fourth grade child who is not familiar with the coast lines of the continents. It seems also that oceans without names would be difficult for the fourth grader to recognize.

Upon completion of the reading of this book one has the feeling of awareness that "global geography" has "arrived." The first twenty-four pages of the book are given over to developing a clear concept of the world as a spherical body. In accomplishing this end numerous concepts and symbols are purposely presented.

On page twenty-five one finds himself in Iceland and moves to Antarctica via Norway, Netherlands, Switzerland, Greece and other Mediterranean Lands, Sahara and the Nile, Land of Congo, and Australia. By various modes of travel one is escorted between pages 146-171 from Australia to the Arctic thence along the Arctic Tundra to Alaska where he begins a north-south trip along the west coast of the Americas.

The fourth grade child using Our Big World first sees the world as a globe of land and water. Then makes three north-south journeys. In these journeys he stops sufficiently long to see what man is doing and reflect on the why. When the study is completed the child should appreciate what it means to live on a spherical world at varying distances from the equator.

This book is well worth the price. It makes one eager to see the other two books of the series.

State Teachers College
St. Cloud, Minnesota
ANNA C. LARSON

Wallace W. Atwood, **The Rocky Mountains.** 324 pp. Vanguard Press, New York, 1945.

It is generally believed that scientists write dry books. Such definitely is not the case with Wallace W. Atwood's, *The Rocky Mountains*. Here one of America's leading geologists and geographers combines sound science with a rare literary style. Most American geologists and geographers know that Wallace W. Atwood has been going to the Rockies annually for many many years. During some twenty-five field seasons he gathered the data that he weaves together to tell this story of the Rockies, which he knows and loves so well.

The author treats his subject in a nontechnical manner. Even so the reader learns much about the origin, growth and decay of the Rockies, as well as a great deal about the last great ice age. To make the volume more interesting much human geography is scattered thruout the pages.

Just a few interesting topics, selected at random, are his advice to inexperienced visitors to the mountains not to become separated from a group in the dangerous sections for even a sprained ankle may require assistance from a companion. He also tells of the universal desire to be alone—to shun noisy and loquacious companions when viewing the world from a mountain peak.

He informs his readers of the mining camps scattered about on the mountains which tell a tale of the hopes and ambitions of men slaving to make a fortune. There is a lucid

picture of fur trappers, prospectors and ranchmen coming into the region and of later developments—smelters, railroads, resort hotels, and summer camps.

There is an interesting and instructive chapter dealing with the art of camping. Here is what he says regarding the locating and building of a campfire in forested areas: "Indians build them small and snuggle up close to the blaze. They say: 'White man, he build so big fire no one can get near enough to get warm.'"

The geographer will find the chapter on "Indians, Ranchmen, Farmers, and Tourists" to be especially interesting.

An important and integral part of the book is the excellent photographs by the author, the artistic black and white sketches by Eugene Kingman, and the physiographic diagram of the Rocky Mountains and the cross-section drawings by Erwin Raisz. For the person who wants to know more about the Rocky Mountains, this is the book to read.

C. Langdon White

Stanford University

H. A. Hoffmeister. **Construction of Map Projections.** 41 pp.; including 18 pages of graphic illustrations. McKnight and McKnight, Bloomington, Illinois, 1946. 72 cents.

Public interest in maps has been intensified during all modern wars. To this generalization, the recent War Against the Axis has been no exception. The global aspects of this conflict and the ubiquitous dissemination of American forces have served to make many millions of our citizens map conscious. It is said that for the North African invasion alone, more maps were printed than had been made during all previous human history. In response to the interest aroused, a number of books, pamphlets, and magazine articles dealing with maps and cartography have appeared recently.

Among these, Hoffmeister's booklet, *Construction of Map Projections,* is noteworthy. It describes eighteen common map projections, illustrates them with sketches, and gives precise directions for drawing them.

The author neglects to emphasize the basic classification of projections, his instructions for mechanical construction appear at times to be too brief, and a few popular projections have been omitted. Moreover, it seems to the reviewer that he might well have given detailed diagrams and instructions for superposing the land outline upon the grid (a process which is not generally understood by the layman). Despite these minor shortcomings, the booklet has real merit and fills a longstanding need. It is so graphic and its directions so specific that from it any teacher can offer a fairly satisfactory course in elementary cartography. Indeed, anyone possessing a drawing board, a set of drafting tools, and the ability to read and follow Dr. Hoffmeister's instructions, can teach himself the rudiments of map making.

George T. Renner

Teachers College
Columbia University

Leví Marrero. **Elementos de Geografía de Cuba.** Editorial Minerva, La Habana, 1946. 540 pages; detailed table of contents; tables; index; 346 figures, including photographs, diagrams, graphs, and more than 100 maps.

This is a textbook written for use in the secondary schools of Cuba, where two hours weekly are allotted to the geography of Cuba thruout the ninth year, following a year each of general and regional geography in the seventh and eighth grades. The book

consists of three parts. Part I deals with physical geography; Part II, entitled Human Geography, stresses industries and trade; Part III, Regional Geography, treats separately each of the six provinces and each of the 31 cities with 10,000 inhabitants or more. Readers with a knowledge of Spanish will gain much information about Cuba and some insight into the Cuban point of view. The sugar industry logically receives a good deal of attention, much of the material being supplementary to that ordinarily found in our textbooks, for example, the problems arising from the use of the best agricultural land for an export crop, together with the practice of holding large idle reserves of potential cane land. Other items of current interest are the suitability of Cuban limonite for special steel because of its nickel and chrome content, and the wartime importance of Cuba as a source of manganese, nickel, and chromite. Maps and graphs offer much information, even to those who do not understand Spanish. Particularly worthy of note is the two-page vegetation map on the front and back end-papers, which explains the map symbols by means of pen sketches illustrating the distinctive characteristics of the vegetation types. Finding much of value in the book, one is inclined to wish for more definite correlation of land quality with the physical features discussed in Part I, for a classified list of illustrations, and for better reproduction of the numerous photographs.

ALICE FOSTER

The University of Chicago

J. Russell Smith and Ogden Phillips, **Industrial and Commercial Geography.** 3rd Edition, 452 maps, graphs, diagrams and photographs. Henry Holt and Company, New York, 1946. 978 Pages, $4.95.

To help us understand the new world in which we live, "one much newer than the world Columbus discovered," *Industrial and Commercial Geography* has been completely rewritten and revised. Materials of industry are discussed on a commodity rather than on a regional basis in the first three-quarters of the book, while an analysis of trade and trade routes comprises the remaining fourteen chapters. The treatment by commodities has two advantages: (1) It provides a world view of the commodity or industry. (2) It avoids duplications if continental regional courses are also taken by students studying this text.

Because of their strategic importance in this Power Age, minerals and related industries receive much fuller treatment than was provided in the earlier editions. Likewise, these industries are discussed in the opening chapters whereas agricultural commodities formerly occupied this position. There are 342 pages devoted to agricultural production with one chapter each dealing with fisheries and forest industries. After discussing the basis of trade and the trade routes on land and sea, attention is given to the air routes of the world. The final chapter, "Geography and Some Trends in Man's Affairs," is largely philosophical, reflecting the viewpoint of a man who has spent much time thinking thru these problems in the light of a geographical background, and provides much food for thought.

Like all of the books written by J. Russell Smith, this one is very readable. There is a wealth of quantitative data and while the statistics used are necessarily mostly for 1938, the last pre-war year, many post-war trends are indicated. The reader is continually implored to consult the well-chosen maps, graphs and pictures which are numbered the same as the pages upon which they appear, a feature which greatly facilitates the finding of the illustrative material. There are 814 footnotes providing numerous references and much supplmentary information which should not be overlooked.

Industrial and Commercial Geography is attractively bound, the print is clear and sufficiently large to be easily read, with two columns of textual material to the page which also reduces eye strain.

All students of geography will find this book an invaluable addition to their bookshelves.

WARREN STRAIN

State Teachers College
Slippery Rock, Pennsylvania

Trevor Lloyd. **Sky Highways.** 61 pp., maps, diagrams, Houghton Mifflin Company, Boston, 1945. $2.50.

Sky Highways is a short book apparently intended for supplementary use in geography or social studies classes in the four upper grades of the elementary school. The book is written in a popular style with short sentences. However, many of the concepts and much of the content is perhaps more appropriate for high school pupils.

The basic theme is an airplane view of the world and the practical and personal problems involved in flying around the world. The author gives concise answers to many questions which pupils generally have concerning air travel. He gives an excellent description of a plane leaving an airport, of its flying a definite course in the air, and of its landing. The meaning of airplane terms such as "radio-sonde," "cumulus," and "A.T.C." are carefully explained. The practical phases of weather and maps are introduced in the second and third chapters. However, the map projections on page 14 may confuse upper grade pupils.

From the standpoint of time-distance, the author brings the feeling of a smaller world. He previews the expanding importance of the airplane in our postwar world. Some of his prophesies concerning the future of commercial aviation, however, may be visionary.

Young readers will enjoy the human element introduced in the book. Human problems of food, clothing, customs inspection, and the crossing of boundaries are made real and stimulating. Part of the text is written to resemble a diary. This method enables the pupil to associate himself with the trip.

The book is well illustrated with both colored and black and white illustrations many of which occupy from one-half to three-quarters of a page. There are places, however, where adequate correlation does not exist between illustrations and text.

Sky Highways is a valuable addition to the supplementary reading books being provided for elementary and high school levels. It should be added to junior high school libraries.

THOMAS F. BARTON

Southern Illinois
Normal University, Carbondale

Howard Daniel and Minnie Belle. **Australia: The New Customer.** 369 pp., tables, maps and appendices. The Ronald Press Company, New York. 1946. $4.50.

The authors of this book approached their task with a well defined and concise objective, "to provide American business men with an economic and commercial guide to Australia." Not only did they accomplish their objective; they have produced a valuable and interesting general reference book as well. Several chapters, particularly Chapter II, The Land and The People, and Chapter V, Living Standards, are excellent general regional geography. Most of the other chapters present Australia's economic geography in a superior manner.

Mr. Daniel is an Australian who has spent many years in the United States. Miss

Belle, an American, is a student of international economics with special interests in Australia. Both were staff members of the Commonwealth of Australian War Supplies Procurement Agency in Washington during the period 1941-1944. The latter experience put them in touch with questions American business men ask about Australia. They have drawn from a wide variety of statistical and descriptive data to provide intelligent and understandable answers to the questions.

Of the ten maps provided only two, Principal Land Use Regions, and Chemical Industries are clear cut and well integrated into the subject matter of the chapters in which they appear.

The numerous tables are carefully selected, well organized, and placed where they make the greatest contribution to the interpretation and substantiation of the text.

Australia: The New Customer is not a "popular" study of the continent, but it is a serious and well written book. It will be greatly appreciated by anyone wishing for up-to-date and readable information concerning economic adaptations to Australia's environment.

ADELBERT K. BOTTS

State Teachers College
Trenton, New Jersey

Marion Tschopik, **Some Notes on the Archeology of the Department of Puno, Peru.** Peabody Museum, Harvard University, Cambridge, Massachusetts. 1946. $1.65.

This volume is a reconnaissance study, summarizing two years of work, 1940-1942. It presents observations on architecture, pottery types, and other artefacts based on surface material. Mrs. Tschopik emphasizes that the report does not pretend to be a systematic study of the region and that the study is by no means exhaustive as there are still many sites not studied. Those presented yielded vast quantities of pottery, metal, and stone from which conclusions drawn are meant to be only tentative. This seemed the best way to present the many perplexing problems. Some test trenches were dug in the hope of gaining a true time perspective in relation to Inca and later Spanish conquests. The results of a more systematic study will be presented in a later report. The study might well have been called "Archeology of the Lake Titicaca Basin."

The present inhabitants of the region are Quechua in the north and Aymara in the south. At the time of the Inca conquest the Aymara speaking peoples appear to have been divided into a number of warring tribes. About 1430 the Quechua under an Inca ruler began to push south, resulting in an Inca domination about 1470. This brief period of control ended with the Spanish Conquest, complete in 1540. Some of the sites studied show that they were in a process of building at the time of the coming of the Spanish. Further study should shed much light on the early impact of the Spanish.

The Aymaras at the time of the Spanish Conquest did not live in towns but rather in clustered family compounds scattered over the pampa (altitude 12,500 feet) around the towns. This is the characteristic distribution today. They go to the towns for the fiestas and trade. Towns existed in aboriginal times chiefly as administrative and ceremonial centers. In the study attention has been largely concentrated on burial sites of which three kinds are described—the chullpas (burial towers), shallow multiple burials within circles of rough stones (slab cist graves), and stone lined subterranean cist tombs.

The discussion is clear and for the most part non-technical. The well drawn sketches together with the well selected photographs, give the lay reader an excellent introduction to the archeology of this most interesting region. Geographers interested in the early evolution of peoples will find the reading of this report profitable.

WILLIAM H. HAAS

Northwestern University

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